State of Utah

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Department of
Environmental Quality

Richard W. Sprott
Executive Director

DIVISION OF AIR QUALITY
Cheryl Heying
Director

DAQE-IN0107900007-08

August 18, 2008

Steven K. Zohner, Risk Management and Safety
Brigham Young University
122 TOMH BYU
Provo, Utah 84602-0100

Dear Mr. Zohner:

Re: Intent to Approve: Modify Approval Order to Add Emergency Generator, Utah County – CDS A; NA; MAINT; NSPS; HAPs; TITLE V MAJOR
Project Code: N010790-0007

The attached document is the Intent to Approve for the above-referenced project. The Intent to Approve is subject to public review. Any comments received shall be considered before an Approval Order is issued. The Division of Air Quality is authorized to charge a fee for reimbursement of the actual costs incurred in the issuance of an Approval Order. An invoice will follow upon issuance of the final Approval Order.

Future correspondence on this Intent to Approve should include the engineer's name as well as the DAQE number as shown on the upper right-hand corner of this letter. Please direct any questions you may have on this project to Mr. Nando Meli. He may be reached at (801) 536-4052.

Sincerely,

Ty L. Howard, Manager
New Source Review Section

TLH:NM:kw

cc: Utah County Health Department
Mike Owens

STATE OF UTAH

Department of Environmental Quality

Division of Air Quality

INTENT TO APPROVE: Modify Approval Order to Add Emergency Generator

Prepared By: Nando Meli, Engineer
(801) 536-4052
Email: nmeli@utah.gov

INTENT TO APPROVE NUMBER

DAQE-IN0107900007-08

Date: August 18, 2008

Brigham Young University

Source Contact
Steven Zohner
(801) 422-2804

M. Cheryl Heying
Executive Secretary
Utah Air Quality Board

Abstract

Brigham Young University has requested approval to replace an emergency generator in the Tanner building. The generator that is approved in the Approval Order DAQE-AN0790005-06 is a 65 horsepower diesel fired generator. It will be replaced by a 755 horsepower diesel fired generator. It will be limited to operate up to 300 hours per rolling 12-month period. The Brigham Young University main campus is located in Provo, Utah County. Utah County is a non-attainment area of the National Ambient Air Quality Standards (NAAQS) for PM_{10}. Provo is a maintenance area for CO.

New Source Performance Standards (NSPS), 40 CFR 60 Subpart A, Subpart Db, and Subpart Dc apply to this source. Maximum Available Control Technology (MACT) regulations 40 CFR 63 Subpart A, Subpart M, and Subpart KK, apply to this source. National Emission Standards for Hazardous Air Pollutants (NESHAP) regulations do not apply to this source. Title V of the 1990 Clean Air Act applies to this source. The existing Title V operating permit for this source will be amended after the Approval Order for this modification is issued.

The emissions, in tons per year, will change as follows: PM_{10} + 0.04, NO_x + 1.20, SO_2 + 0.05, CO + 0.60, VOC + 0.08 and HAPs + 0.01, The changes in emissions will result in the following, in tons per year, potential to emit totals: PM_{10} = 13.64, NO_x = 158.50, SO_2 = 217.15, CO = 50.80, VOC = 17.99, and HAPs = 9.56.

The Notice of Intent (NOI) for the above-referenced project has been evaluated and has been found to be consistent with the requirements of the Utah Administrative Code Rule 307 (UAC R307). Air pollution producing sources and/or their air control facilities may not be constructed, installed, established, or modified prior to the issuance of an Approval Order (AO) by the Executive Secretary of the Utah Air Quality Board.

A 30-day public comment period will be held in accordance with UAC R307-401-7. A Notice of Intent to approve will be published in the Daily Herald on August 23, 2008. During the public comment period, the proposal and the evaluation of its impact on air quality will be available for the public to review and provide comment. If anyone so requests a public hearing, it will be held in accordance with UAC R307-401-7. The hearing will be held as close as practicable to the location of the source. Any comments received during the public comment period and/or the hearing will be evaluated.

The proposed conditions of the AO may be changed as a result of the comments received. Unless changed, the AO will be based upon the following conditions:

General Conditions:

1. This AO applies to the following company:

   Site Office

   Brigham Young University (BYU)
   Administrative Vice President
   B-307 ASB
   Provo, UT 84602-0100
   Phone Number (801) 422-3941
   Fax Number (801) 422-0703

The equipment listed in this AO shall be operated at the following location:
BYU Main campus, Provo, Utah County

Universal Transverse Mercator (UTM) Coordinate System: UTM Datum NAD27
4,455.20 kilometers Northing, 445.00 kilometers Easting, Zone 12

2. All definitions, terms, abbreviations, and references used in this AO conform to those used in the Utah Administrative Code (UAC) Rule 307 (R307) and Title 40 of the Code of Federal Regulations (40 CFR). Unless noted otherwise, references cited in these AO conditions refer to those rules.

3. The limits set forth in this AO shall not be exceeded without prior approval in accordance with R307-401.

4. Modifications to the equipment or processes approved by this AO that could affect the emissions covered by this AO must be reviewed and approved in accordance with R307-401.

5. All records referenced in this AO or in applicable 40 Code of Federal Regulations (CFR) Part 60 New Source Performance Standards (NSPS), and/or 40 CFR Part 63 National Emission Standards for Hazardous Air Pollutants for Source Categories (MACT Standards), which are required to be kept by the owner/operator, shall be made available to the Executive Secretary or Executive Secretary's representative upon request, and the records shall include the five-year period prior to the date of the request. Records shall be kept for a minimum period of five years.

6. BYU shall install and operate the emergency generator and shall conduct its operations of the main campus equipment operations in accordance with the terms and conditions of this AO, which was written pursuant to BYU's Notice of Intent submitted to the Division of Air Quality (DAQ) on June 2, 2008 and additional information submitted to the DAQ on July 11, 2008.

7. This AO shall replace the AO (DAQE-AN0790005-06) dated August 18, 2006.

8. The approved installations shall consist of the following equipment or equivalent*:

VARIOUS LOCATION EMERGENCY GENERATORS

A. Miscellaneous diesel fired emergency generators with (each engine rated at less than 600 horsepower (hp)) combined rating of less than 4,255 hp located at the following buildings:

Auxiliary Services Buildings, Marriott Center, Smith Family Living Center, Cougar Stadium, Bean Life Science Museum, Crabtree Technology Building, Ernest L. Wilkinson Center, Cannon Center - Helaman Halls, Clark Law Building, Auxiliary Maintenance Building & Brewster Building, Harman Continuing Education Building, Chem Stores, Helaman Halls Telephone Node & Wymount Terrace North, Miler Park, Kimball Tower, Smith Building, and Richards Building & Smith Field House.

VARIOUS LOCATION LARGE EMERGENCY GENERATORS

B. Miscellaneous diesel fired emergency generators with (each engine rated at more than 600 hp) combined rating of less than 10,545 hp located at the following buildings:

Benson Buildings, Central Heating Plant, Student Health Center, Talmage Math - Computer Science Building and Tanner Building.

CENTRAL HEATING PLANT

C. One (1) Boiler (Unit #1)40 CFR 60 Subpart Dc

Fuel Type	Natural Gas with Oil as a backup fuel
Heat Input Capacity:	64,000,000 British thermal unit per hour (Btu/hr)

D. Two (2) Boilers (Unit #2 & Unit #3) ***

Fuel Type	Coal
Heat Input Capacity:	64,000,000 Btu/hr – each
Exhaust:	Main stack via the Fabric Filter Baghouse (Unit #8)

E. Two (2) Boiler (Unit #4 & Unit #6) 40 CFR 60 Subpart Db

Fuel Type	Natural Gas with Oil as a backup fuel
Heat Input Capacity:	192,000,000 Btu/hr – each

F. One (1) Boiler (Unit #5)***

Fuel Type	Coal
Heat Input Capacity:	128,000,000 Btu/hr
Exhaust:	Main stack via the Fabric Filter Baghouse (Unit #8)

G. One (1) Central Heating Plant Fabric Filter Baghouse (Unit #8) after cyclonic separators attached to each coal fired boiler exhaust.

Minimum Air Flow:	76,000 Actual Cubic Feet per Minute (ACFM)

VARIOUS LOCATION PAINT BOOTHS

H. Four (4) Paint Booths

Locations:	Brewster Building Auxiliary Maintenance Shop

	Auto Shop Snell Building
Associated Controls:	Particulate arrestor filters

BIOLOGY RESEARCH

I. One (1) Bio-Safety Laboratory

Associated Controls:	HEPA filtering system controls emissions from the containment hood exhaust stack

FUEL STORAGE

J. Three (3) Storage Tanks**

Capacity:	30,000 gallons – each
Fuel Type:	Fuel oil

VARIOUS LOCATIONS OTHER MISCELLANEOUS EQUIPMENT

K. One (1) Kiln

Fuel Type:	Wood
Location	Building #66 (east of Brewster Building)

L. Four (4) Boilers **

Fuel Type:	Natural Gas
Heat Input Capacity:	Less than 5,000,000 Btu/hr – each
Location:	Various buildings

LAUNDRY BUILDING

M.	Dry Cleaning Units	40 CFR 63 Subpart M
	Process:	Dry-to-Dry units
	Solvent:	Perchloroethylene

UNIVERSITY PRESS BUILDING

N.	Printing Equipment	40 CFR 63 Subpart KK

* Equivalency shall be determined by the Executive Secretary.
** This equipment is listed for informational purposes only.
*** These boilers were installed and operating prior to the applicability date of 40 CFR 60 Subpart Dc (in the case of item #8-D), and 40 CFR 60 Subpart Db (in the case of item

#8-F) respectively. They are not subject to the provisions of these respective NSPS requirements.

The above list does not include grandfathered emission sources. Such sources are listed below in condition #9.

9. The following items are recognized to be in use at BYU's main campus. A permit is not required for their operation due to installation prior to November 29, 1969:

Three (3) Cyclonic Dust Collectors (one in the Auxiliary Maintenance Building, one in the Brewster Building, and one in the Snell Building).

10. Each of the paint booths listed in condition #8-H above shall be equipped with a paint arrestor particulate filter, or equivalent to control particulate emissions. All exhaust air from each of the paint booths shall be routed through its particulate control system before being exhausted to the atmosphere.

11. BYU shall notify the Executive Secretary in writing when the installation of the 755 hp emergency generator in the Tanner Building has been completed and is operational. To insure proper credit when notifying the Executive Secretary, send your correspondence to the Executive Secretary, attn: Compliance Section.

If the installation has not been completed within eighteen months from the date of this AO, the Executive Secretary shall be notified in writing on the status of the installation. At that time, the Executive Secretary shall require documentation of the continuous installation of the operation and may revoke the AO in accordance with R307-401-18.

Limitations and Test Procedures

12. Emissions to the atmosphere at all times from the indicated emission point(s) shall not exceed the following rates and concentrations:

Central Heating Plant	Pollutant	lb/hr	ppmdv (7% O_2 dry)
Boiler #1	NO_x	9.55	95
Boiler #2	NO_x	37.4	331
Boiler #3	NO_x	37.4	331
Boiler #4	NO_x	38.5	127
Boiler #5	NO_x	74.8	331
Boiler #6	NO_x	38.5	127

Central Heating Plant	Pollutant	lb/hr	grains/dscf (68^oF, 29.92 in Hg)
Central Heating Plant Baghouse	PM_{10}	1.83	0.010

13. Stack testing to show compliance with the emission limitations stated in the above condition shall be performed as specified below:

A.

Central Heating Plant Emission Point	Pollutant	Testing Status	Test Frequency
Boiler #1	NO_x	*	#
Boiler #2	NO_x	*	#
Boiler #3	NO_x	*	#
Boiler #4	NO_x	*	#
Boiler #5	NO_x	*	#
Boiler #6	NO_x	*	#
Baghouse	PM_{10}	*	#

B. Testing Status

* The initial testing has already been performed.

\# Stack test frequency as established in the Title V operating permit.

C. Notification

The Executive Secretary shall be notified at least 30 days prior to conducting any required emission testing. A source test protocol shall be submitted to DAQ when the testing notification is submitted to the Executive Secretary.

The source test protocol shall be approved by the Executive Secretary prior to performing the test(s). The source test protocol shall outline the proposed test methodologies, stack to be tested, and procedures to be used. A pretest conference shall be held, if directed by the Executive Secretary.

D. Sample Location

The emission point shall be designed to conform to the requirements of 40 CFR 60, Appendix A, Method 1, or other methods as approved by the Executive Secretary. An Occupational Safety and Health Administration (OSHA) or Mine Safety and Health Administration (MSHA) approved access shall be provided to the test location.

E. Volumetric Flow Rate

40 CFR 60, Appendix A, Method 2 or other testing methods approved by the Executive Secretary.

F. PM_{10}

For stacks in which no liquid drops are present, the following methods shall be used: 40 CFR 51, Appendix M, Methods 201, 201a, or other testing methods approved by the Executive Secretary. The back half condensibles shall also be

tested using the method specified by the Executive Secretary. All particulate captured shall be considered PM_{10}.

For stacks in which liquid drops are present, methods to eliminate the liquid drops should be explored. If no reasonable method to eliminate the drops exists, then the following methods shall be used: 40 CFR 60, Appendix A, Method 5, 5a, 5d, or 5e as appropriate, or other testing methods approved by the Executive Secretary. The back half condensibles shall also be tested using the method specified by the Executive Secretary. The portion of the front half of the catch considered PM_{10} shall be based on information in Appendix B of the fifth edition of the EPA document, AP-42, or other data acceptable to the Executive Secretary.

The back half condensibles shall not be used for compliance demonstration but shall be used for inventory purposes.

G. Nitrogen Oxides (NO_x)

40 CFR 60, Appendix A, Method 7, 7A, 7B, 7C, 7D, 7E, or other testing methods approved by the Executive Secretary.

H. Calculations

To determine mass emission rates (lb/hr, etc.) the pollutant concentration as determined by the appropriate methods above shall be multiplied by the volumetric flow rate and any necessary conversion factors determined by the Executive Secretary, to give the results in the specified units of the emission limitation.

I. Existing Source Operation

For an existing source/emission point, the production rate during all compliance testing shall be no less than 90% of the average production achieved in the previous three (3) years.

14. Visible emissions from the following emission points shall not exceed the following values:

A. All natural gas fueled boilers - 10% opacity
B. All paint booth exhaust stacks - 10% opacity
C. All baghouse and cyclonic separator exhaust stacks - 10% opacity
D. All print shop equipment exhaust stacks - 10% opacity
E. All dry cleaning equipment exhaust stacks - 10% opacity
F. All diesel engines - 20% opacity
G. All other points - 20% opacity

Opacity observations of emissions from stationary sources shall be conducted according to 40 CFR 60, Appendix A, Method 9.

For sources that are subject to NSPS, opacity shall be determined by conducting observations in accordance with 40 CFR 60.11(b) and 40 CFR 60, Appendix A, Method 9.

Initial visible emission observations shall consist of 30 observations of six minutes each in accordance with 40 CFR 60.11(b). BYU shall comply with 40 CFR 60.675(3) or 40 CFR 60.675(4) for equipment that is subject to NSPS Subpart OOO. Visible emission observations must be conducted in accordance with 40 CFR 60, Appendix A, Method 9. A certified observer must be used for these observations.

15. The following production and/or consumption limits shall not be exceeded:

A. 16,992 tons of coal consumed during the annual period starting March 1 and ending October 31.

B. 405 million standard cubic feet of natural gas consumed during the annual period starting November 1 and ending February 28 (or February 29 in the case of leap years).

C. 90,000 gallons of #2 fuel oil consumed during the annual period starting November 1 and ending February 28 (or February 29 in the case of leap years).

D. 2,100 gallons of perchloroethylene consumed per rolling 12-month period.

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E. Six (6) cords (11.25 tons or less) of wood consumed per rolling 12-month period in the wood fired kiln.

F. 350 hours of operation per rolling 12-month period per each of the three 1,500 kW Cummins/Onan emergency generators.

G. 300 hours of operation per rolling 12-month period for the Tanner Building 755 hp emergency generators.

H. 10 percent combined annual capacity factor* for natural gas and fuel oil for each boiler defined as Unit #4 and Unit #6 in the above Condition #8E.

*Annual capacity factor as defined in 40 CFR 60.41b.

To determine compliance with a rolling 12-month total, or other annual period, BYU shall calculate a new 12-month total by the twentieth day of each month using data from the previous 12 months. Records of consumption shall be kept for all periods when the plant is in operation. Consumption of natural gas, fuel oils, coal, and wood for other boilers shall be determined by examination of each fuel supplier's billing records along with operations logs showing which day(s) each type of fuel were used. The records of consumption shall be kept on a daily basis. Supervisor monitoring and maintaining an operations log shall determine hours of operation of the emergency generators.

16. Emergency generators shall be used for electricity producing operation only during the periods when electric power from the public utilities is interrupted, or for regular maintenance of the generators. Records documenting the usage of each generator shall

be kept in a log and they shall show the date each generator was used, the duration in hours of each generator usage, and the reason for each generator usage.

Fuels

17. BYU shall use natural gas as a primary fuel and #2 or better fuel oil as a backup fuel in the boilers listed in conditions #8-C, #8-E.

18. BYU shall use only natural gas as fuel in the boilers listed in condition #8-L.

19. BYU shall use coal in the boilers listed in conditions #8-D, & #8-F.

20. BYU shall use wood as fuel in the kiln listed in condition #8-K.

21. There shall be no limit on the amount of natural gas or #2 fuel oil consumed in any equipment during the annual period starting March 1 and ending October 31.

22. The Executive Secretary shall be notified prior to using fuel oil during a natural gas curtailment.

    Coal may be used as an emergency measure fuel during the annual period starting November 1 and ending February 28 (or February 29 in the case of leap years), with the approval of the Executive Secretary, in the event both natural gas and fuel oil are unavailable. In addition, coal may be used during these winter months to perform stack testing as required by the DAQ.

23. The sulfur content of any coal or any mixture of coals burned shall not exceed either of the following:

    A. 0.54 pounds of sulfur per million Btu heat input as determined by ASTM Method D-4239-85, or approved equivalent.

    B. 0.60% by weight as determined by ASTM Method D-4294-89, or approved equivalent.

    The weight percent sulfur and the fuel heating value shall be obtained by submitting a coal sample to a laboratory, acceptable to the Executive Secretary, on no less than a monthly basis.

24. The sulfur content of any fuel oil or diesel burned shall not exceed 0.5 percent by weight for fuel oils or diesel consumed in all equipment.

    For each delivery of oil, BYU shall either:

    A. Determine the fuel sulfur content expressed as weight % in accordance with the methods of the American Society for Testing Materials (ASTM) Method D-4294-89 or approved equivalent;

B. Inspect the fuel sulfur content expressed as weight % determined by the vendor using methods of the ASTM; or

C. Inspect documentation provided by the vendor that indirectly demonstrates compliance with this provision.

Federal Limitations and Requirements

25. In addition to the requirements of this AO, all applicable provisions of 40 CFR 60, NSPS Subpart A, 40 CFR 60.1 to 60.18 (General Provisions), Subpart Db, 40 CFR 06.40b to 60.49b (Standards of performance for Industrial-Commercial-Institutional Steam Generating Units), and Subpart Dc, 40 CFR 60.40c to 60.48c (Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units) apply to this installation.

26. In addition to the requirements of this AO, all applicable provisions of 40 CFR 63, MACT Standards Subpart A (General Provisions), Subpart M, 40 CFR 63.320 to 63.325 (National Perchloroethylene Air Emissions Standards for Dry Cleaning Facilities), and Subpart KK, 40 CFR 63.820 to 63.839, including Appendix A (National Emission Standard for the Printing and Publishing Industry) apply to this installation.

Volatile Organic Compound (VOC) and Hazardous Air Pollutants (HAPs) Limitations

27. The plant-wide emissions of VOCs and HAPs from the paint booths, printing/publishing, dry cleaning, and other campus-wide similar operations shall not exceed:

16.00 tons per rolling 12-month period for VOCs generated from painting and printing/publishing activities
0.20 tons per rolling 12-month period for Xylene
0.33 tons per rolling 12-month period for Glycol Ethers
5.22 tons per rolling 12-month period for any combination of HAPs not listed above which include: Toluene, Methanol, Methyl Iso-Butyl Ketone, Methylene Chloride, N-Butyl Acetate, or Cumene.*

* Any individual HAP included in this list shall have an emission limit less than the Emission Threshold Value (ETV) for that chemical, as provided for in R307-410-4. Perchloroethylene, which has a limit elsewhere in this AO, and the products of incomplete combustion from the use of the various internal combustion engines and boilers are not included in this total.

Compliance with each limitation shall be determined on a rolling 12-month total. Based on the twentieth day of each month, a new 12-month total shall be calculated using data from the previous 12 months.

The VOC and HAP emissions shall be determined by maintaining a record of VOC and HAP emitting materials used each month. The record shall include the following data for each material used:

A. Name of the VOC and HAPs emitting material, such as: paint, adhesive, solvent, thinner, reducers, chemical compounds, toxics, isocyanates, etc.

B. Density of each material used (pounds per gallon)

C. Percent by weight of all VOC and HAP in each material used

D. Gallons of each VOC and HAP emitting material used

E. The amount of VOC and HAP emitted monthly by each material used shall be calculated by the following procedure:

$$\text{VOC} = \frac{\%\ \text{VOC by Weight}}{(100)} \times \left[\text{Density}\ \frac{(\text{lb})}{(\text{gal})}\right] \times \text{Gal Consumed} \times \frac{1\ \text{ton}}{2000\ \text{lb}}$$

$$\text{HAP} = \frac{\%\ \text{HAP by Weight}}{(100)} \times \left[\text{Density}\ \frac{(\text{lb})}{(\text{gal})}\right] \times \text{Gal Consumed} \times \frac{1\ \text{ton}}{2000\ \text{lb}}$$

F. The amount of VOC or HAP emitted monthly from all materials used.

G. The amount of VOCs or HAPs reclaimed for the month shall be similarly quantified and subtracted from the quantities calculated above to provide the monthly total VOC or HAP emissions.

Records & Miscellaneous

28. At all times, including periods of startup, shutdown, and malfunction, owners and operators shall, to the extent practicable, maintain and operate any equipment approved under this Approval Order, including associated air pollution control equipment, in a manner consistent with good air pollution control practice for minimizing emissions. Determination of whether acceptable operating and maintenance procedures are being used will be based on the information available to the Executive Secretary which may include, but is not limited to, monitoring results, opacity observations, review of operating and maintenance procedures, and inspection of the source. All maintenance performed on the equipment authorized by this AO shall be recorded.

29. The owner/operator shall comply with R307-150 Series. Inventories, Testing and Monitoring.

30. The owner/operator shall comply with R307-107. General Requirements: Unavoidable Breakdowns.

The Executive Secretary shall be notified in writing if the company is sold or changes its name.

This AO in no way releases the owner or operator from any liability for compliance with all other applicable federal, state, and local regulations including R307.

A copy of the rules, regulations and/or attachments addressed in this AO may be obtained by contacting the Division of Air Quality. The Utah Administrative Code R307 rules used by DAQ, the Notice of Intent (NOI) guide, and other air quality documents and forms may also be obtained on the Internet at the following web site:

http://www.airquality.utah.gov/

The annual emission estimations below include point source, fugitive emissions, and grandfathered emissions, and do not include fugitive dust, road dust, or tail pipe emissions. These emissions are for the purpose of determining the applicability of Prevention of Significant Deterioration, non-attainment area, maintenance area, and Title V source requirements of the R307. Except for VOC and HAPs they are not to be used for determining compliance.

The Potential To Emit emissions for Brigham Young University's Main Campus are currently calculated at the following values:

	Pollutant	Tons/yr
A.	PM_{10}	13.64
B.	SO_2	217.15
C.	NO_x	158.50
D.	CO	50.80
E.	VOC	17.99
F.	HAPs	
	Glycol Ethers	0.327
	HCl	0.97
	HF	0.81
	Metals	0.03
	Organic as VOC	0.46
	Xylene	0.196
	Total Haps	9.56

Sincerely,

Ty L. Howard, Manager
New Source Review Section